

at least 200% has been removed from claim 38. It is therefore believed that all of the claims now satisfactory comply with 35 USC § 112 and that this rejection has been properly overcome.

With respect to the rejections on the merits of the claims, it is believed that a few additional remarks might be helpful. These are offered next. With reference to Item 2 of the Official Action, it is believed that the claims are presently clearly distinct with respect to the Bradford et al '778 reference, taken in view of Chi '938, Willer '523 and Fleming '315. While the Bradford et al reference does describe a low energy binder component, which seems somewhat similar to that claimed clearly hydroxy-terminated poly (tetramethylene adipate) is not mentioned in the reference; nor is it mentioned in Chi's '938, Willer '523 or Fleming '315. None of these references, taken singularly or combination, recognize the particular attributes that the claimed material gives to the combination claimed nor do they reveal any other reason for one skilled in the art to select the claimed material.

With respect to the combination of Voigt '442 in view of Wanninger et al '526 as applied to claims 43-44 and 53-54 under 35 USC § 103(a), more information has been obtained. While it is true that Voigt discloses a urethane polymer identified as Estane 5702 (BF Goodrich) which, according to Voigt, contains the claimed poly(tetramethylene adipate) (hereinafter PTMA), note

that it also includes (isocyanate-cured) 1,4-butanediol. More importantly, however, according to BF Goodrich (attached as Exhibit A) Estane 5702 is an aromatic polyester-based polyurethane polymer (emphasis added), which PTMA clearly is not.

Furthermore, note that at column 6, lines 38-41, he (Voight) indicates that any polyurethane elastomer which is fully reacted and is soluble in TNT will do in his formula, clearly indicating no preference nor suggestion of PTMA.

In Wanninger et al, as in the other references, the particular attributes discovered and brought to light in this invention with regard to PTMA go unrecognized. Wanninger et al merely mention "Estane" as a generality of a plastic binder that is commercially available. The reference mentions no Estane in particular nor does it say more than it is a thermoplastic polyurethane binder. As per the above, Estane 5702, e.g., is a different composition. Thus, it is believed that the rejection based on this combination cannot be sustained and should also be withdrawn.

With regard to the final combination applied against the claims in Item 5, it is noted that Sutton et al '859 mention a preference for "carboxy-terminated, hydroxy-terminated, and isocyanate-terminated linear polymers having a molecular weight ranging from 500 to 15,000 and preferably from 5,000 to 12,000" (column 4, lines 54-57), but they clearly talk in generalities

and do not specifically mention PTMA. Their examples are limited to carboxy-terminated PGA with a molecular weight of about 2000 and another carboxy-terminated polyester (Witco F-17-80) with a molecular weight of 1550.

Hauser et al '632 do mention PTMA as one of a long list of many suitable polymers but indicate no preference for PTMA over others. Godfrey '842 does not even specifically include PTMA among the numerous polyesters he does list. Finally, Genetti et al '868 and Kangas '805 disclose PTMA as one among many possible polyesters without saying any more about its use.

Applicant does not profess to have invented the PTMA material per se, nor is it claimed as such, but only to have discovered that it imports extraordinary mechanical properties to a low energy binder when used in the manner described. It is clear from the numerous references in the art that no one prior to the present invention has recognized this. Thus, the present inventor alone has discovered the unusual properties this material gives to low energy binders which was heretofore unknown.

In view of the above, amendments taken together with the remarks herein, applicant believes his claims to be patentably distinct from the cited references, taken either singularly or in

combination, and reconsideration and allowance of these claims is respectfully requested.

Respectfully Submitted,

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#### CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that the foregoing Amendment in response to the Official Action of March 13, 2001, in application Serial No. 09/088,163, filed on June 1, 1998, of John R. Moser, Jr., entitled "REDUCED ENERGY BINDER FOR ENERGETIC COMPOSITIONS" and a Transmittal Letter are being sent by facsimile transmission to: The Commissioner of Patents and Trademarks, Washington, D.C. 20231, on May 15, 2001.



Anna C. Lemke  
On Behalf of C. G. Mersereau  
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Date of Signature: May 15, 2001